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09/865,295	05/24/2001	Gianpaolo Barozzi	CISCP678	5183

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EXAMINER	
SINGH, DALZID E	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/865,295	BAROZZI ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 11-13, 16, 17, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano (US Patent No. 5,436,750) in view of Jacob (US Pub. No. 2002/0138796).

Regarding claim 1, Kawano discloses optical repeater transmission system comprising:

at a first intermediate location along said link, separating a portion of an optical signal traveling along said link to form a first measurement optical signal (as shown in Fig. 5, Kawano shows optical splitter (32) to separate portion of optical signal which is measured and compared; as shown in Figs. 1 or 2, Kawano shows plurality of repeaters units, any one of the repeater unit can be considered as a first intermediate location);

detecting said first measurement optical signal to form a first measurement electrical signal (photodiode (42) detect the first measurement optical signal and form a first electrical signal); and

detecting said first measurement electrical signal to generate an indication of correct receipt of data at said first intermediate location (the circuitries in the repeater

system decode the measured signal and obtained the indication of correct receipt of data which is the supervisory signal; based on the reception of such signal, failure occurrence can be determined; see col. 2, lines 37-55 and col. 4, lines 10-15).

Kawano disclose receiver for detecting the optical signal and differs from the claimed invention in that Kawano does not disclose performing error correction decoding on said first measurement electrical signal based on a number of detected error in the data. Jacob is cited to show FEC decoder and detecting number of errors (see paragraph [007], [008] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide the decoder at the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults and reconstruct the received signal.

Regarding claim 2, as discussed above, and in col. 2, lines 37-55 and col. 4, lines 10-15, Kawano discloses using said indication of correct receipt of data (supervisory signal) at said first location to determine a fault along said link prior to said first intermediate location.

Regarding claim 3, as shown in Fig. 5, Kawano isolating a portion of a particular wavelength component of said optical signal (the wavelength component is isolated by filter (41)).

Regarding claim 4, Kawano further discloses that the system comprise:

at a second location along said link, separating a portion of an optical signal traveling along said link to form a second measurement optical signal (as shown in Figs. 1 or 2, Kawano shows separating the portion of the optical signal);

detecting said second measurement optical signal to form a second measurement electrical signal (on Fig. 5, Kawano shows repeater (R2) detecting second measurement such as (f1 or f2)); and

detecting said second measurement electrical signal to generate an indication of correct receipt of data at said second intermediate location (see col. 4, lines 10-21 and col. 5, lines 38-61).

Kawano disclose receiver for detecting the optical signal and differs from the claimed invention in that Kawano does not disclose performing error correction decoding on said first measurement electrical signal based on a number of detected error in the data. Jacob is cited to show FEC decoder and detecting number of errors (see paragraph [007], [008] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide decoder at the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to reconstruct the received signal.

Regarding claim 5, as discussed above, Kawano disclose using said indications of correct receipt of data at said first intermediate location and at said second intermediate location to locate a fault along said link prior to said second intermediate location.

Regarding claim 6, in Fig. 5, Kawano disclose monitoring performance of an optical communication link at an intermediate location along said link, said apparatus comprising:

a coupler that separates a portion of an optical signal traveling along said link (as shown in Fig. 5, repeater (R2) would clearly have coupler (optical splitter) as shown in (R1) in order to split portion of the optical signal);

an optical receiver (PD) that recovers data based on said portion of said optical signal;

receiver that identifies errors in receipt of said data; and a link verification stage that generates an indication of link operation based on errors identified by said error correction decoding circuit (see col. 4, lines 10-21 and col. 5, lines 38-61; Kawano discloses that the circuitries in repeater (R2) check for indication of supervisory signal and based on that location fault can be determined).

Kawano disclose receiver for detecting the optical signal and differs from the claimed invention in that Kawano does not disclose performing error correction decoding that identifies a number of detected errors in the data. Jacob is cited to show FEC decoder and detecting number of errors (see paragraph [007], [008] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide decoder at the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults and reconstruct the received signal.

Regarding claims 11, 16 and 21, Kawano discloses optical receiver comprising a photodetector circuit that generates an electrical signal based on said portion of said optical signal (in Fig. 5, photodetector (33) receives optical signal which further processed by circuitry inside the repeater unit (R1)). Kawano differs from the claimed invention in that Kawano does not specifically disclose a demodulator that recovers data from said electrical signal. However, in col. 4, lines 57-61, Kawano teaches modulation of the optical signal. It would have been obvious that a demodulator can be incorporated to further recover data or information modulated within the optical signal.

Regarding claim 12, Kawano discloses optical repeater transmission system, as shown in Fig. 5, comprising:

a first link monitor that monitors performance of said link at a first intermediate location along said link (the first link monitor can be considered as (R1)); and

a second link monitor that monitors performance of said link at a second intermediate location along said link (the second link monitor can be considered as (R2)).

Kawano, as shown in Fig. 5, shows optical splitter (32) or a coupler that separates a portion of an optical signal traveling along said link and an optical receiver (circuitries within R1) that recovers data based on said portion of said optical signal, at the first link monitor, and shows optical receiver (circuitries within R2) at the second link monitor and differs from the claimed invention in that Kawano does not show optical coupler at the second link monitor. However, it would have been obvious to an artisan of ordinary skill in the art to provide an optical coupler at the second link monitor. One

of ordinary skill would have been motivated to do this in order to split part of the optical signal for monitoring and processing.

Furthermore, in col. 4, lines 10-21 and col. 5, lines 38-61, Kawano discloses that the circuitries in repeater (R2) check for indication of supervisory signal and based on that location fault can be determined which indicate link operation and differs from the claimed invention in that Kawano does not disclose an error correction decoding circuit that identifies errors in receipt of said data and generates an indication of link operation based on number of errors detected. Jacob is cited to show FEC decoder and detecting number of errors (see paragraph [007], [008] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide decoder at the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults and reconstruct the received signal.

Regarding claim 13, Kawano discloses that a fault is located based on said indications of link operation from said first link monitor and said second link monitor (see col. 4, lines 10-21 and col. 5, lines 38-61; Kawano discloses that the circuitries in repeater (R2) check for indication of supervisory signal and based on that location fault can be determined).

Regarding claim 17, Kawano discloses optical repeater transmission system comprising:

means for separating a portion of an optical signal traveling along said link (as shown in Fig. 5, Kawano shows optical splitter (32) to separate portion of optical signal

which is measured and compared; as shown in Figs. 1 or 2, Kawano shows plurality of repeaters units, any one of the repeater unit can be considered as a first intermediate location);

means for recovering data based on said portion of said optical signal (the repeater system, for example, R1, recover the detected optical signal; see col. 2, lines 43-46 and col. 6, lines 56-66);

means for identifying errors in receipt of said data; and means for generating an indication of link operation based on errors detected by said error identifying means (the circuitries in the repeater system decode the measured signal and obtained the indication of correct receipt of data which is the supervisory signal; based on the reception of such signal, failure occurrence can be determined; see col. 2, lines 37-55 and col. 4, lines 10-15).

Kawano discloses generating an indication of link operation based on errors detected by said error identifying means and differs from the claimed invention in that Kawano does not disclose detecting number of error. Jacob is cited to show performance monitoring by detecting number of errors (see paragraph [007] and [008]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to modify the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults.

Regarding claims 22 and 23, Kawano discloses optical repeater transmission system comprising:

means for receiving indications of whether a data optical signal is received successfully from a plurality of monitor locations along an optical link; and means for determining a location of said fault to be beyond a last monitor location receiving said optical signal successfully (the circuitries in the repeater system receives indication of whether an optical signal is received successfully from a plurality of monitor locations along an optical link and determine location of fault to be beyond a last monitor location; see col. 2, lines 37-55, col. 4, lines 10-15, and col. 5, lines 6-68 to col. 6, lines 1-10; the repeater unit receives indication of fault such as the presence of supervisory signal and location of fault indicated by repeater unique identification; supervisory signal *indicates* whether the data optical signal is received).

Kawano discloses means for receiving indications of whether a data optical signal is received successfully from a plurality of monitor locations along an optical link and differs from the claimed invention in that Kawano does not disclose receiver to received faults indication based on a number of errors detected at each monitor location. Jacob is cited to show performance monitoring by detecting number of errors (see paragraph [007] and [008]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to modify the receiver of Kawano in order to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults. Furthermore, since Kawano discloses plurality of repeaters, therefore it would have been obvious to provide monitor at each repeater location.

3. Claims 7-10, 14, 15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano (US Patent No. 5,436,750) in view of Jacob (US Pub. No. 2002/0138796) and further in view of Fujita et al (US Patent No. 6,204,959).

Regarding claims 7, 14 and 18, the combination of Kawano and Jacob et al differs from the claimed invention in that Kawano does not disclose a filter that isolates a particular wavelength component of said portion of said optical signal for input to said optical receiver. However, it is well known to provide optical filter to isolate a particular wavelength. Fujita et al is cited to show such well known concept. In col. 4, lines 40-49, Fujita et al disclose filter to isolate a particular wavelength. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide such filter to the system of Kawano. One of ordinary skill in the art would have been motivated to do such in order to reduce or eliminate noise within the optical signal.

Regarding claim 8, in Fig. 5, Kawano discloses an optical amplifier that boosts portion of said optical signal (in col. 1, lines 54-56, Kawano discloses erbium-doped fiber for amplifying the optical signal).

Regarding claims 9, 15 and 19, as discussed above, Fujita et al further disclose that the filter is a tunable filter (see col. 4, lines 40-49), which be tuned to a selected wavelength component.

Regarding claims 10 and 20, as discussed above, Fujita et al further disclose that the filter is a tunable filter (see col. 4, lines 40-49), therefore it would have been obvious that the filter can be tuned to a selected wavelength component.

4. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano (US Patent No. 5,436,750) in view of in view of Jacob (US Pub. No. 2002/0138796) and further in view of Wei et al (US Patent No. 6,515,967).

Regarding claim 24, Kawano discloses optical communication system comprising:

means for receiving indications of whether a data optical signal is received successfully from a plurality of monitor locations along an optical link; and

means for determining a location of said fault to be beyond a last monitor location receiving said optical signal successfully (the circuitries in the repeater system receives indication of whether an optical signal is received successfully from a plurality of monitor locations along an optical link and determine location of fault to be beyond a last monitor location; see col. 2, lines 37-55, col. 4, lines 10-15, and col. 5, lines 6-68 to col. 6, lines 1-10; the repeater unit receives indication of fault such as the presence of supervisory signal and location of fault indicated by repeater unique identification; supervisory signal *indicates* whether the data optical signal is received).

Kawano discloses means for detecting error and determining faults and differs from the claimed invention in that Kawano does not disclose detecting number of error at each monitor locations. Jacob is cited to show codes for detecting number of errors (see paragraph [007], [008], [0021] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide codes to the receiver of Kawano to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and

distinct faults. Moreover, since Kawano discloses plurality of repeaters, therefore it would have been obvious to provide monitor at each repeater location.

Furthermore, the combination of Kawano and Jacob discloses optical repeater transmission system and method for monitoring and detecting fault as discussed above and differ from the claimed invention in that Kawano does not specifically disclose that the monitoring and detecting of fault is performed by computer codes or programs stored in a computer-readable storage medium. However, it well known that codes can be written to perform various functions. Wei et al is cited to show computer codes or program for detecting faults. In col. 16, lines 27-35, Wei et al disclose computer program stored in a computer-readable storage medium for detecting fault. Therefore, it would have been obvious to a person of ordinary skill in the art to provide computer program to perform function for the system of the combination above. One of ordinary skill in the art would have been motivated to do this in order to facilitate and automate network monitoring.

Regarding claim 25, Kawano discloses optical communication system comprising:

means for receiving indications of whether a data optical signal is received successfully from a plurality of monitor locations along an optical link; and

means for determining a location of said fault to be beyond a last monitor location receiving said optical signal successfully (the circuitries in the repeater system receives indication of whether an optical signal is received successfully from a plurality of monitor locations along an optical link and determine location of fault to be beyond a last

monitor location; see col. 2, lines 37-55, col. 4, lines 10-15, and col. 5, lines 6-68 to col. 6, lines 1-10; the repeater unit receives indication of fault such as the presence of supervisory signal and location of fault indicated by repeater unique identification; supervisory signal *indicates* whether the data optical signal is received).

Kawano discloses means for detecting error and determining faults and differs from the claimed invention in that Kawano does not disclose detecting number of error at each monitor locations. Jacob is cited to show codes for detecting number of errors (see paragraph [007], [008], [0021] and [0022]). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide codes to the receiver of Kawano to detect number of errors as taught by Jacob. One of ordinary skill in the art would have been motivated to do this in order to isolate and distinct faults. Moreover, since Kawano discloses plurality of repeaters, therefore it would have been obvious to provide monitor at each repeater location.

Furthermore, the combination of Kawano and Jacob discloses optical repeater transmission system and method for monitoring and detecting fault as discussed above and differ from the claimed invention in that Kawano does not specifically disclose that the monitoring and detecting of fault is performed by computer codes or programs stored in a computer-readable storage medium. However, it well known that codes can be written to perform various functions. Wei et al is cited to show computer codes or program for detecting faults. In col. 16, lines 27-35, Wei et al disclose computer program stored in a computer-readable storage medium for detecting fault. Therefore, it would have been obvious to a person of ordinary skill in the art to provide computer

program to perform function for the system of the combination above. One of ordinary skill in the art would have been motivated to do this in order to facilitate and automate network monitoring. Moreover, it is well known that the instructions or codes as taught by the combination of Kawano, Jacob et al and Wei et al is executed by a processor.

Response to Arguments

5. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
December 17, 2005

M. R. SEDIGHIAN
PRIMARY EXAMINER